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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BARNES, CRYSTAL J

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 05/17/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/760,661

Applicant(s)

PINTO, OSCAR P.

Examiner

Crystal J. Barnes

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 10-12 is/are allowed.
6) ☒ Claim(s) 1,3,5-9,13 and 14 is/are rejected.
7) ☐ Claim(s) 2,4 and 15 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is an initial Office Action upon examination of the above-identified application on the merits. Claims 1-15 are pending in this application.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: reference number 340 in figure 13 is not mentioned in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: figure 13 is not mentioned in the detailed description of the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 5, 7-9, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,456,624 B1 to Eccles et al.

As per claim 1, the Eccles et al. reference discloses a method of discovering topology of a subnet fabric, comprising: providing a plurality of elements in a subnet fabric (see column 4 lines 1-3, "switched network 10"), said elements including switches (see column 4 line 3, "switches 20, 22, 24"), end nodes (see column 4 line 2, "nodes N1-N9"), and a subnet manager (see column 4 lines 8-10, "ingress switch"); issuing a packet (see column 4 lines 16-20, "packet") from said subnet manager ("ingress switch") to a first switch ("ingress switch") connected thereto; reissuing a packet ("packet") from said

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first switch ("ingress switch") to every element (see column 4 lines 30-33, "appropriate local node or remote switch") connected thereto; repeating said reissuing from every switch ("ingress switch, remote switch") which receives a packet ("packet") until so that all elements and all paths (see column 4 lines 25-27, "broadcast type packets") there between have received at least one packet ("packet"); issuing a return packet (see column 4 lines 53-64, "Acknowledgement response, Unknown response") from an end node ("nodes N1-N9") in response to a packet ("packet").

As per claim 3, the Eccles et al. reference discloses node identification numbers (see column 4 lines 21-24, "source identifier, destination identifier") identify nodes ("nodes N1-N9") of said subnet fabric ("switched network 10") so that path discovery is automatic (see column 4 lines 37-50, "address resolution").

As per claim 5, the Eccles et al. reference discloses every element (see column 5 lines 43-49, "switch address, node address") and every port ("port address") therein are identified by number ("identifiers") and a list ("directory 42") is made in every packet of all elements ("switch address, node address") and ports ("port address") through which said packet

("packet") passes (see column 5 lines 32-38, "store routing address information for destination identifiers").

As per claim 7, the Eccles et al. reference discloses a switch (see column 6 lines 1-3, "each of the switches") receiving a packet (see column 5 lines 50-67, "packet, interswitch resolve packet") which has passed there through before will issue a return packet ("Acknowledgement response, Unknown response").

As per claim 8, the Eccles et al. reference discloses each switch (see column 5 lines 31-38, "ingress switch") receiving a packet ("packet") copies ("stores") the incoming packet ("packet") after adding the port number (see column 5 lines 48-49, "port address") at which the packet ("packet") is received.

As per claim 9, the Eccles et al. reference discloses the port number ("port address") through which the copied packet ("stored packet") is to be issued is added before issuing (see column 5 lines 50-58, "directory 42").

As per claim 13, the Eccles et al. reference discloses a method of discovering topology of a subnet fabric, comprising: providing a plurality of elements in a subnet fabric (see column 4 lines 1-3, "switched network 10"), said elements including switches (see column 4 line 3, "switches 20, 22, 24"),

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end nodes (see column 4 line 2, "nodes N1-N9"), and a subnet manager (see column 4 lines 8-10, "ingress switch"); assigning a unique identifier to each element (see column 4 lines 16-24, "source identifier, destination identifier") and each port (see column 5 lines 43-49, "port address") thereof in said subnet fabric ("switched network 10"); determining a directed route (see column 4 lines 37-50, "address resolution") packet ("packet") using said identifiers ("destination identifier"); issuing said packet ("packet") from said subnet manager ("ingress switch") to determine all paths ("connectivity phase") in said subnet fabric ("switched network 10").

As per claim 14, the Eccles et al. reference discloses said packet is issued using a broadcast method (see column 4 lines 25-26, "broadcast type packets").

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,456,624 B1 to Eccles et al. in view of USPN 5,884,036 to Haley.

As per claim 6, the Eccles et al. reference does not expressly disclose said packet contains a maximum hop count and a hop pointer indicating if said maximum hop count has been reached.

The Haley reference discloses

(see column 5 lines 53-64, "... TOPOLOGY_REQUEST message, it sets the HOP_COUNT field to a predetermined value. ... Every succeeding switch to receive this message increments the value of the HOP_COUNT field by one.")

(see columns 6-7 lines 63-5, "... packet's HOP_COUNT is greater than the HOP_COUNT stored in the table packet ... discard the incoming message packet ...")

(see column 7 lines 50-59, "... this HOP_COUNT is tested to determine if it is greater than a predefined maximum hop count. If it is, the switch ... discards the packet. This is a fail-safe mechanism ...")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the switched network system taught by the Eccles et al. reference with the method of determining the

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topology of a network taught by the Haley reference to include the special cell signaling emitted by each node of the network.

One of ordinary skill in the art would have been motivated to include the special cell signaling emitted by each node of the network to provide reliable operation in a network containing physical loops where undesirable looping of topology information cells are avoided.

Allowable Subject Matter

8. Claims 10-12 are allowable.
9. Claims 2, 4 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to data routing in general:

USPN 6,711,171 B1 to Dobbins et al.

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USPN 6,678,252 B1 to Cansever

USPN 6,591,303 B1 to Hendel et al.

USPN 6,343,326 B2 to Acharya et al.

USPN 6,304,556 B1 to Haas

USPN 6,011,780 to Vaman et al.

USPN 5,896,379 to Haber

USPN 5,796,736 to Suzuki

USPN 5,235,599 to Nishimura et al.

US Pub. No. 2003/0026268 A1 to Navas

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703.308.3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cjb
10 May 2004


Anthony Knight
Supervisory Patent Examiner
Group 3600